

09326051

ABSTRACT

The present invention relates to single crystal scintillators and includes a transparent single crystal of cerium-activated lutetium yttrium oxyorthosilicate having the general formula $\text{Lu}_{(2-x-z)}\text{Y}_x\text{Ce}_z\text{SiO}_5$, wherein $0.05 \leq x \leq 1.95$ and $0.001 \leq z \leq 0.02$. The crystal scintillator of the present invention is dense, bright, rugged, and non-hygroscopic and has a relatively short decay time for luminescence. The invention also includes a scintillation detector using the crystal scintillator, which produces an electrical signal in response to light received from the crystal scintillator upon exposure to gamma rays, x-rays, and the like.

✓